

## REMARKS

In the Office Action, Claims 1-30 are rejected. In this Response, Claims 7, 13, 14, 16, 22, 26 and 30 are amended, Claims 1-6 and 19-21 are cancelled and no claims are added. Applicant respectfully requests reconsideration of pending Claims 7-18 and 22-30, in view of the following remarks.

### **I. Claims Rejected Under 35 U.S.C. §102**

Applicants respectfully assert that the Patent Office has failed to adequately set forth a *prima facie* rejections under 35 U.S.C. §§102(a), (e) or (f). “Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*” *Lindemann Maschinenfabrik v. American Hoist & Derrick* (“*Lindemann*”), 730 F.2d 452, 1458 (Fed. Cir. 1994)(emphasis added). Additionally, each and every element of the claim must be exactly disclosed in the anticipatory reference. *Titanium Metals Corp. of American v. Banner* (“*Banner Titanium*”), 778 F.2d 775, 777 (Fed. Cir. 1985).

The Examiner has rejected Claims 1-8, 12-15, and 22-28 under 35 U.S.C. §§102(a), (e) and (f) as being clearly anticipated by U.S. Patent No. 6,170,052 issued to Morrison (“*Morrison*”). Applicants respectfully traverse these rejections.

Regarding Claim 7, Claim 7, as amended, includes the following claim features, which are neither taught nor suggested by either *Morrison* or the references of record:

performing both a first operation from the first branch instruction path to produce a first result and a second operation from the second branch instruction path to produce a second result,

associating both the first result and the second result with a condition associated with the identified conditional branch instruction,

outputting both the first result and the second result with the associated condition, and

retiring the first result or the second result based on how the condition is resolved. (Emphasis added.)

Accordingly, Claim 7 is amended to require execution of both first (target) instructions from a first (target) instruction path identified by the conditional branch instruction, as well as second (fall through) instructions from a second (fall through) branch instruction path identified by the conditional branch instruction. Claim 7 further requires the association of the condition associated with the conditional branch instruction path with both the first and second results. Accordingly, during retirement of the first results and second results, Claim 7 requires retirement of either the first result or the second result, based on how the condition is resolved.

Accordingly, for certain identified conditional branch instructions, Claim 7 avoids prediction of whether their associated condition will evaluate as either true or false. Specifically, when the associated condition is true, instructions from the target instruction path should only be

executed. However, when the condition is false, instructions from the fall through instruction path should only be executed. As such, conventional program execution of conditional branch instructions requires that either instructions from the target instruction path or the fall through instruction path are executed.

Conversely, Claim 7 requires the execution of instructions from both the target instruction path and the fall through instruction path. Accordingly, both sets of instructions continue on through the execution pipeline until the instructions reach a retirement stage. At the retirement stage, either the first result or the second result is retired based on how the associated condition is resolved, as required by Claim 7. In other words, the end result is that retirement will retire either instructions from the target instruction path or the fall through instruction path based on how the condition associated with the identified conditional branch instruction is eventually resolved, as required by Claim 7. Applicants respectfully submit that these features are neither taught nor suggested by Morrison.

As illustrated with reference to FIGS. 3 and 4 of Morrison, Morrison describes techniques for implementing predicated sequences with register renaming while avoiding situations where:

Predicated sequences with prior art renaming change the results from a predicated sequence and will produce incorrect results. (*See* col. 2, lines 65-67.)

As further described by Morrison:

The apparatus includes a renamer to rename the destination registers of two conditional micro-ops with a single physical register in response to the two conditional micro-ops having the same destination register and belonging to a single special predicated sequence. The apparatus includes a rename table coupled to the renamer. The renamer is adapted to write the identity of the physical register that renames each destination register to a location of the renamed table. (*See*, col. 3, lines 15-22.)

Accordingly, Applicants respectfully submit that the teachings of Morrison are limited to the use of a rename table to rename destination registers when predicated sequences are performed in conjunction with renaming in order to ensure that correct results are produced. Consequently, Applicants submit that the renaming of destination registers for certain special predicate sequences as taught by Morrison does not teach or suggest the execution of instructions from both first and second instruction paths and association of a condition with a first result produced from the first instruction and the second result produced from the second instruction, such that results associated with a condition that evaluates as true are retired, whereas results associated with a condition that evaluates as false are not required, as required by Claim 7.

However, the case law is quite clear in requiring that each and every element of the claim must be exactly disclosed in the anticipatory reference. *Id.* Therefore, Applicants respectfully submit that the Examiner fails to adequately set forth a *prima facie* rejection under 35 U.S.C. §§103(a), (e) or (f) since the renaming technique, as taught by Morrison fails to teach or suggest the conditional branch instruction path execution, as required by Claim 7, as amended. Therefore,

Applicants respectfully submit that Claim 7, as amended, is patentable over Morrison, as well as references of record. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §102(a) rejection of Claim 7.

Regarding Claims 8-15, Claims 8-15 depend from Claim 7, and therefore include the patentable claim features of Claim 7, as described above. Accordingly, Claims 8-15, based on their dependence from Claim 7, as well as the arguments provided above, are also patentable over Morrison as well as the references of record. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §§102(a), (e) and (f) rejections of Claims 8-15.

Regarding Claim 16, Claim 16, as amended, includes the following claim features, which are neither taught nor suggested by either Morrison or the references of record:

- an operation unit to perform both a first operation from a first instruction path designated by a conditional instruction to produce a first result, and a second operation from a second instruction path designated by the conditional instruction to produce a second result;

- a memory to store a condition associated with the conditional instruction in association with the first result and the second result; and

- a retirement unit to retire either the first result or the second result based on how the condition is resolved.

Applicants submit that the conditional instruction execution, as required by Claim 16, is neither taught nor suggested by either Morrison or the references of record. Namely, the register renaming technique as taught by Morrison does not teach the association of a condition with a first result and a second result and retirement of either the first result or the second results based on how the condition is resolved, such that results associated with the end untrue or false condition are disregarded, whereas results associated with a condition that resolves as true are retired.

Accordingly, Applicants respectfully submit that Claim 16, as amended, includes patentable claim features, which are neither taught nor suggested by either Morrison or the references of record, which prohibit the Examiner from establishing a *prima facie* case of anticipation of Claim 16, as amended, under 35 U.S.C. §§102(a), (e) and (f). Accordingly, Applicants respectfully submit that Claim 16, as amended, is patentable over Morrison, as well as the references of record. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §§102(a), (e) and (f) rejections of Claim 16.

Regarding Claims 17 and 18, Claims 17 and 18 depend from Claim 16, and therefore include the patentable claim features of Claim 16, as described above. Accordingly, Claims 17 and 18, based on their dependency from Claim 16 are also patentable over Morrison, as well as the references of record. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §§102(a), (e) and (f) rejections of Claims 17 and 18.

Regarding Claim 22, Claim 22 includes the following patentable claim features, which are neither taught nor suggested by either Morrison or the references of record:

... an execution unit to perform both a first operation from a first instruction path designated by a conditional instruction to produce a first result and a second operation from a second branch path designated by the conditional instruction to produce a second result and to associate both the first result and the second result with a condition associated with the conditional instruction;

a reorder buffer to store results of executed instructions; and

a retire unit to retire results of executed instructions, the retire unit to retire the first result or the second result based on how the condition is resolved.

Applicants submit that for at least the reasons described, the register renaming technique, as taught by Morrison does not teach the conditional instruction execution, as required by Claim 22, as amended. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §§102(a), (e) and (f) rejections of Claim 22.

Regarding Claims 23-25, Claims 23-25 depend from Claims 22 and therefore include the patentable claim features of Claim 22, as described above.

Regarding Claim 26, Claim 26 includes the following claim features, which are neither taught nor suggested by either Morrison or the references of record:

a processor to perform both a first operation designated by a conditional instruction to produce a first result and a second operation to produce a second result, to associate both the first result and the second result with a condition associated with the conditional instruction to output both the first result and the second result with the associated condition and to retire the first result or the second result based on how the condition is resolved.

Applicants respectfully submit that the performing of both first operations and second operations associated with the conditional instruction to produce first and second results in association of the first and second results with a condition associated with the conditional instruction and eventual retirement of either the first result or the second result based on how the condition is resolved is neither taught nor suggested by the register renaming technique of Morrison. Accordingly, Applicants respectfully submit the Claim 26, as amended, for at least the reasons described above, is patentable over Morrison, as well as the references of record. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §§102(a), (e) and (f) rejections of Claim 26.

Regarding Claims 27-30, Claims 27-30 depend from Claim 26, and therefore include the patentable claim features of Claim 26, as described above. Accordingly, Claims 27-30, based on their dependency from Claim 26 and for at least the reasons described above, are also patentable over Morrison, as well as the references of record. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §§102(a), (e) and (f) rejections of Claims 27-30.

## **II. Claims Rejected Under 35 U.S.C. §112**

The Examiner has rejected Claims 16-21 under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections.

In response, Applicants have amended Claims 16-18 and cancelled Claims 19-21 to provide the essential cooperative relationships of the elements claimed therein. Accordingly, Applicants submit that the aforementioned amendments place Claims 16-18 in compliance with 35 U.S.C. §112, second paragraph. Therefore, Applicants respectfully request the Examiner reconsider and withdraw the rejection of Claims 16-18 under 35 U.S.C. §112, second paragraph.

## **III. Rejection Under 35 U.S.C. §101**

The Examiner has stated that Claims 1-3 of the present invention are directed to the same invention as that of Claims 1-3 of commonly assigned Application No. 09/610,895. The issue of priority under 35 U.S.C. §102(g) and possibly 35 U.S.C. §102(f) of this single invention is resolved as follows.

In response to the rejection, Applicants cancel Claims 1-6. Accordingly, Applicants respectfully submit that Applicants' cancellation of Claims 1-6 renders the Examiner's rejection of Claims 1-3 under 35 U.S.C. §101 based on double-patenting of the same invention type moot.

The Examiner has provisionally rejected Claims 1-30 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-22 of co-pending Application No. 09/610,895. In response, Applicants submit herewith a terminal disclaimer in compliance with 37 C.F.R. §1.321(c) to overcome the provisional rejection based on a non-statutory double patenting ground as the conflicting application is commonly owned by the same Assignee, namely, Intel Corporation.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance, and such action is earnestly solicited at the earliest possible date.

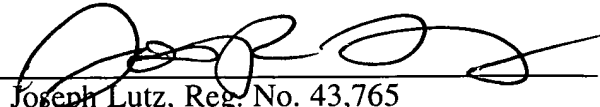
If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR, & ZAFMAN LLP

Dated: November 4, 2003

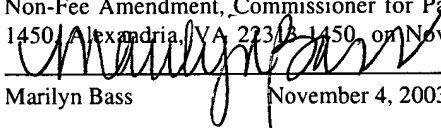
By: \_\_\_\_\_

  
Joseph Lutz, Reg. No. 43,765

12400 Wilshire Boulevard  
Seventh Floor  
Los Angeles, California 90025  
(310) 207-3800

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November 4, 2003